MUSIC MAN, INC.

RD & RP SERIES AMPLIFIERS

OWNER'S MANUAL

RD SERIES

RP SERIES

RD SERIES

The Music Man RD Series guitar amplifiers combine state-of-the-art in vacuum tube design with a built-in reverb and foot-switchable distortion circuitry. Thanks to Music Man's many circuit refinements, you get the warm sound of tubes, plus cool running, low noise, and high power ratings.

The "R" in "RD Series" stands for "Reverb," and our built-in reverb has the new anti-shock 3 spring delay, a genuine advantage over long springs when running high power. The reverb can be adjusted with a front panel control, and turned On and Off via a foot switch.

The "D" in "RD Series" stands for "Distortion." Five controls (two sets of Gain and Volume controls, and a footswitch that selects between them) let you dial in exactly the amount of this effect you want . . . from a clean well-defined sound, to a gentle warmth when you play hard, to an all-out raucus rock sound. You can adjust the Gain for more distortion, and then turn down the Volume to keep the power level where you want it. Thus, depending on how you set the controls, the footswitch selects between two different power levels, two different distortion levels at the same power, or a combination thereof.

The footswitch has an indicator light so you know which set of controls is activated. The RD's also have a high power/standby/low power switch that is useful when you want to really push the tubes for the sound of a small amplifier being overdriven, yet not stress the speakers with full-power "squared" up sound. All units have provisions for an extension speaker.

The RD Series include a variety of features previously unobtainable in single units. A major improvement in flexibility and sound quality is provided by the RD's two line out/line in patch points, one for low and the other for higher levels. These jacks are handy for routing the preamplified sound to a pedal or studio-type effects device, then returning it to the amplifier. Inserting a volume pedal at this jack point is the same as placing the Master Volume control on the floor; unlike pedals that come before the input, there is no need to increase the volume to compensate for loss, and when you turn down the level, you also turn down any background noise. The same Out/In jacks can be used to feed the power section of another RD or similar amp, making it easy to get double power, or more, above that which could be obtained from a single amplifier. Similarly, the output can be fed to a monitor, reinforcement or recording mixer.

Bright and Deep switches give instantaneous treble and bass boost. Their turnover frequencies are beyond the Bass, Middle and Treble controls, so you get the equivalent of 5-band equalization.

RP SERIES

The Music Man RP Series guitar amplifiers combine the state-of-the art in vacuum tube design with built-in foot-switchable phaser and reverb, plus adjustable distortion circuitry. Thanks to Music Man's many circuit refinements, you get the warm sound of tubes, plus cool running, low noise, and high power ratings.

The "R" in "RP Series" stands for "Reverb." The built-in reverb has the same new anti-shock 3 spring delay, front panel control and footswitch capability as the RD Series.

The "P" in "RP Series" stands for "Phasør." Our built-in foot-switchable unit is superior to external units because it operates on a preamplified signal, so there is little "swishing" of background noise, just the desired phase effect.

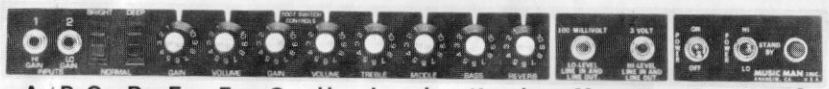
Bright and Deep switches yield instantaneous treble and bass boost, and their turnover frequencies are beyond the Bass, Middle and Treble controls, so you get the equivalent of 5-band equilization.

The RP Series will give you the same range of sounds as the RD Series, depending on how you set the Gain and Volume controls. You adjust the Gain up and down for more or less distortion, and then adjust the Volume for the desired power level. And the RP's also have a high power/standby/low power switch for getting the sound of a small overdriven amplifier without overstressing the speakers.

The RP Series include a variety of features previously unobtainable in single units. Like the RD Series, they have low and high level line out/line in patch points which avoid noise and improve performance with all kinds of effects units and facilitate interface with other amps and mixing consoles.

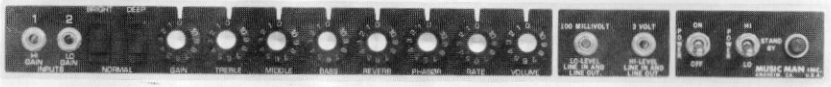
AMPLIFIER FRONT PANEL

RD PANEL



A B C D E F G H I J K L M N O P Q

RP PANEL



A B C D E I J K L R S F M N O P Q

A. INPUT JACK 1. Instrument input. Has more gain than Input Jack 2. Useful for low output pickups, or for easier overdrive of the amplifier.

B. INPUT JACK 2. Instrument input. Has 6 dB less gain (half the level) of Input Jack 1. Useful for clean sound with high output pickups. If Jacks 1 and 2 are both used simultaneously, they both have the same sensitivity.

C. BRIGHT SWITCH. Provides instantaneous treble boost. Can be used for additional bite.

D. DEEP SWITCH. Provides instantaneous bass boost for a warmer sound at low volume levels.

E. GAIN CONTROL. Adjusts the amount of amplification that occurs immediately after the input jack. If the amplification is increased here (higher gain), successive circuits can be more easily overdriven for more distortion. Cleaner sound is achieved at lower gain settings; if a louder output is needed at the speaker, the Volume control can then be turned up.

F. VOLUME CONTROL. Sets the level in the final stage of the preamplifier circuitry just ahead of the power amplifier. Volume is essentially independent of the Gain settings; if Gain is turned up for more distortion, also increasing the level, Volume can be set for any desired power level.

G. FOOTSWITCH-ACTUATED GAIN CONTROL. Serves the same purpose as the other Gain control; a footswitch alternates between the two controls for instant selection of different distortion levels. It has higher sensitivity than the other Gain control.

H. FOOTSWITCH-ACTUATED VOLUME CONTROL. Serves the same purpose as the other Volume control; the same footswitch that selects which Gain control is active simultaneously selects which Volume control is active.

I. TREBLE CONTROL. Adjusts the amount of boost (accentuation) or cut (attenuation) in the high frequency range.

J. MIDDLE CONTROL. Adjusts the amount of boost or cut in the middle of the frequency spectrum.

K. BASS CONTROL. Adjusts the amount of boost or cut in the low frequency range.

L. REVERB CONTROL. Adjusts the amount of reverb (spring-delayed sound) that is mixed together with the direct-from-the-instrument sound. Reverb adds fullness to the sound, and lessens the presence.

M. 100 MILLIVOLT JACK. This is the LO LEVEL LINE IN LINE OUT jack. (See section on patch jack use.)

N. 3 VOLT JACK. This is the HI LEVEL LINE IN LINE OUT jack. (See section on patch jack use.)

O. POWER ON/OFF SWITCH. Turns AC power ON and OFF. When the switch is OFF, the amplifier is completely shut down.

P. POWER SELECTOR SWITCH (HI/STANDBY/LO). In Standby position, tubes are kept warm and the preamp works, but high voltage is not applied to the tube plates, so there is no power fed to the speakers. In Hi position, the tubes are fed full plate voltage and the amplifier can develop its rated output power. In Lo position, voltage to the tube plates is reduced; you get the same sound quality, but at half the power, so there is less chance of blowing a speaker when using maximum distortion, and big-amp sound can be obtained at somewhat lower volume levels for studio work.

Q. POWER INDICATOR LIGHT. A red indicator lamp is illuminated whenever the Power switch is ON, regardless of the Power Selector Switch position.

R. PHASØR (INTENSITY) CONTROL. Sets the amount of Phasør effect, from no phasing, to a slight tremolo-like wavering, to very deep filter notches.

S. PHASØR RATE (SPEED) CONTROL. Sets the speed of the Phasør sweep from very slow to very fast.

AMPLIFIER REAR PANEL

A. HEAVY DUTY AC LINE CORD. This provides AC power to the amplifier and should be plugged directly into an appropriate AC receptacle. For optimum performance the use of light duty extension cords should be avoided. (NOTE: Models with 3-wire grounded plugs should always be grounded when possible for optimum safety and noise performance. The amplifier will operate if external ground is unavailable at which time the ground switch should be used. See D.)

B. AC CONVENIENCE RECEPTACLE. (Domestic and CSA models only.) This is an unswitched and unfused AC source to be used to power accessories. Be sure to observe the 300 WATT rating.

C. FUSE. This fuse is in the AC supply of the amplifier and will protect the amplifier and operator in the event of an electrical fault. If a fuse blows it should only be replaced with a fuse rated in accordance with the listing at the fuseholder. If the amplifier repeatedly blows fuses it should be checked out by a qualified technician. Under no circumstances should a fuse with a higher current rating or a fuse bypass be used as this could cause equipment damage and present a serious safety hazard. (NOTE: The amplifier is also equipped with an internal thermal breaker which will cut off the AC supply (the entire amp will shut off) when the chassis exceeds normal operating temperature. If this happens, the amplifier should be unplugged from its' AC source and be allowed to cool. The thermal breaker will reset after approximately one hour depending on how fast the chassis cools down.

D. GROUND SWITCH. The ground switch is used to eliminate AC buzz when the amplifier is not externally grounded. It is a three position switch. By switching it to either of the two outside positions, one position will give a noticeable reduction in noise from the amplifier. This is the correct switch position. This will also eliminate any shocks you may feel between the amp and any grounded surface. The center position is used to float the ground of the amplifier. This position is also used when the amplifier is externally grounded, i.e., through the AC power cord.

E. SPEAKER IMPEDANCE SWITCH. This is used to set the output impedance of the amplifier to 4 ohms or 8 ohms. This affects both output jacks.

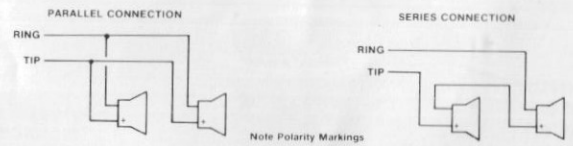
The total speaker impedance can be calculated from the following equations:

PARALLEL SPEAKER IMPEDANCE = $\frac{R1 \times R2}{R1 + R2}$

SERIES SPEAKER IMPEDANCE = R1 + R2

i.e., Two 8 ohm speakers in parallel equal $\frac{8 \times 8}{8 + 8} = \frac{64}{16} = 4$ ohms

Two 4 ohm speakers in series equal 4 + 4 = 8 ohms.

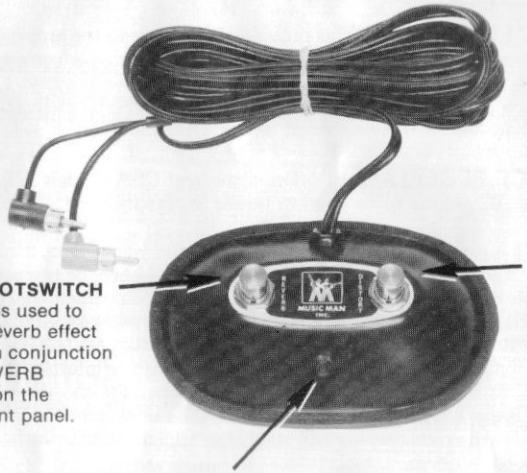


F. MAIN SPEAKER JACK. This jack is used to drive 4 or 8 ohm loads depending on the setting of the speaker impedance switch. It must be used for the amplifier to function.

G. EXTENSION SPEAKER JACK. This jack is only to be used if the main speaker jack is already in use and a second output is desired from the amplifier.

FOOTSWITCH

RD

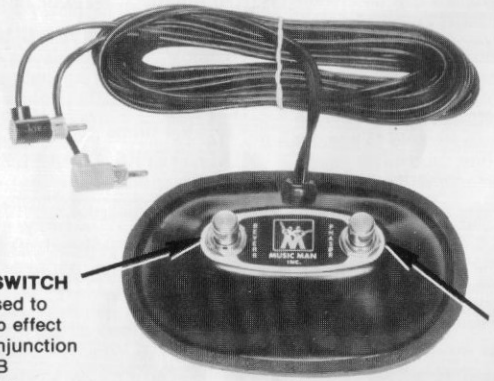


REVERB FOOTSWITCH
This switch is used to switch the reverb effect on and off in conjunction with the REVERB CONTROL on the amplifier front panel.

DISTORT FOOTSWITCH
This switch is used to switch the amplifier in and out of the DISTORT mode. (It will alternate between the two sets of GAIN and VOLUME controls.)

LED INDICATOR
When this indicator is lit, the amplifier is in the DISTORT mode. (The footswitch GAIN and VOLUME controls are activated.)

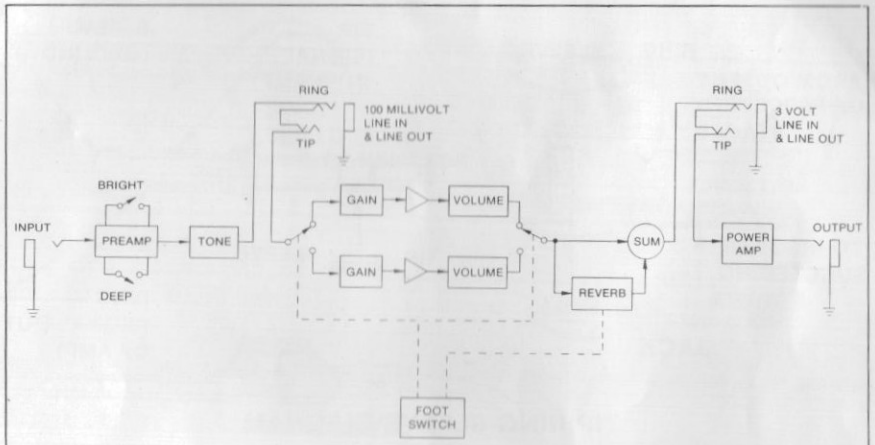
RP



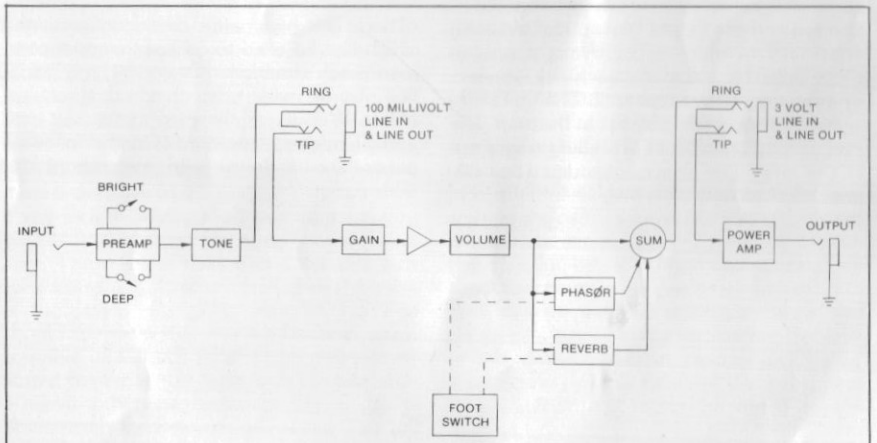
REVERB FOOTSWITCH
This switch is used to switch the reverb effect on and off in conjunction with the REVERB CONTROL on the amplifier front panel.

PHASØR FOOTSWITCH
This switch is used to switch the amplifier in and out of the PHASØR mode in conjunction with the PHASØR CONTROL on the amplifier front panel.

SIMPLIFIED BLOCK DIAGRAM

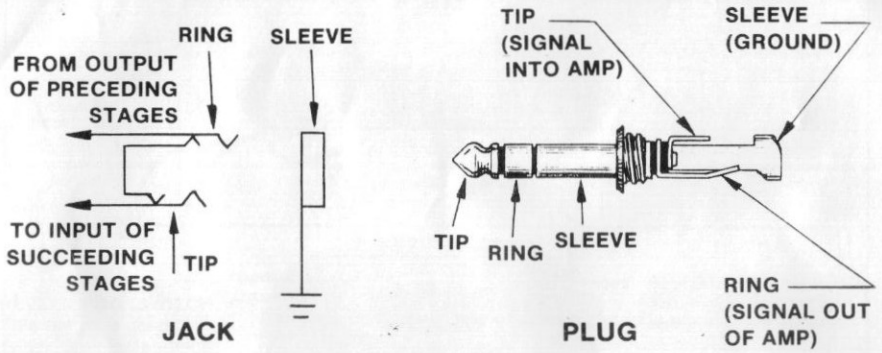


RD SIMPLIFIED BLOCK DIAGRAM



RP SIMPLIFIED BLOCK DIAGRAM

RD/RP SERIES PATCH JACKS

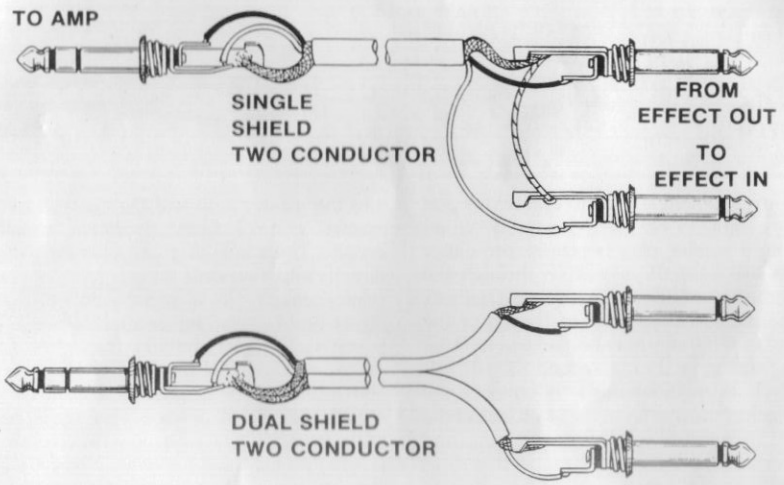


TIP RING SLEEVE DIAGRAM

The two line in/line out jacks on the front panel of the RD and RP Series Amplifiers provide signal access at two different points in the amplifier. (See block diagram.) The markings above the jacks (100 millivolt and 3 volt) are nominal signal levels that can be extracted or injected at these points. Note under transient conditions as much as ±15V can appear at these jacks. Note also that each jack is stereo, or a tip, ring, sleeve type jack. The tip carries signal into succeeding stages in the amp. The ring carries signal from preceding stages out of the amp. The sleeve is ground. (See diagram.) When nothing is plugged into the jack, the tip and ring are connected together, thus passing the signal through the amp. Placing a plug into the jack will interrupt this path. The output impedance on the ring of both jacks is less than 700 ohms. The input impedance on the tip of both jacks is greater than 180 K ohms.

There are two patch cord configurations which can be used to realize the most common patch situations. Of course, any variation may be made to meet individual requirements. We will call these cords the 1) y cord and 2) master/slave cord. On the following pages are diagrams and suggestions for their use.

Y CORD



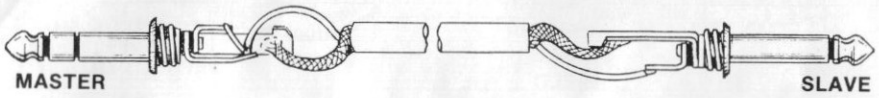
This arrangement can be used to insert a device into the internal signal path of the amplifier. The advantage of this is that the instrument signal is buffered by the preamp and the signal out is post tone controls. This allows you to boost the highs of the instrument without boosting the noise of the device. The low output impedance (less than 700 ohms) of both jacks allows the use of devices with a variety of input impedances. The optimum jack to use from a noise standpoint is the 3 volt jack. Studying the block diagram, you will see that it occurs just ahead of the power amp. There is less gain after the 3 volt jack than after the 100 millivolt jack, thus the noise of the device is amplified less. NOTE: You should be aware that this is a line level signal (capable of ±15 volt peaks) and a device inserted here must be capable of passing such a signal, otherwise distortion and a loss of power from the amplifier will occur. The 100 millivolt jack should be used with devices designed to be used at lower levels. This would include most battery powered devices.

NOTE: The signal out of this jack under some conditions can also be as much as ±15 volts, although the nominal level is usually lower than the 3 volt jack. This will cause distortion and loss of power with some battery powered devices, particularly those powered by a single 9 volt battery.

With regard to the wire used, a single shield two conductor such as Belden #8412 is suitable for most applications, but a dual pair of individually shielded conductors (such as is commonly found in home stereo patch cords) is preferred since they will minimize capacitive coupling between input and output. This capacitive coupling will become apparent with gain devices such as distortion units and compressors, by causing oscillations. Because of this, these particular devices give better results when placed between the instrument and amplifier, but don't be afraid to experiment.

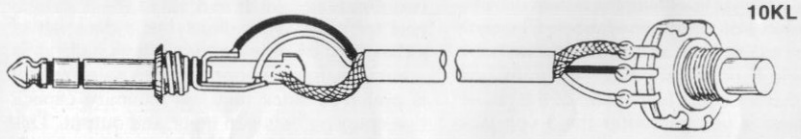
This cord is available from your MUSIC MAN dealer.

MASTER/ SLAVE CORD



This arrangement is used to extract a signal from the amp to be used elsewhere. When the stereo master plug is placed into either jack, it will pass the signal on through the amp (note tip and ring are connected together). The output signal appears at the tip of the slave plug. This can now be plugged into the corresponding jack on a second RD/RP amplifier. (It is recommended to connect the 3 volt jack of the master to the 3 volt jack of the slave.) This will allow the power amp and speaker of the slave amp to be driven in parallel with the power amp and speaker of the master amp producing a higher total power output. The instrument is plugged into the master amp and the controls on the master control both amplifiers simultaneously. The slave plug can also be plugged directly into a console for recording or sound reinforcement. It is recommended that a direct box be used for ground isolation. The 3 volt jack signal contains the entire signal which is heard from the speaker whereas the 100 millivolt jack is post tone controls pre reverb, gain, and phaser. This signal has a lower nominal level with more head room and is suitable for taking a cleaner direct sound (i.e., on amplified accoustic instruments).

This cord is available from your MUSIC MAN dealer.



EXTERNAL MASTER VOLUME

This arrangement provides an external master volume control. This control can be mounted in a box and placed near the musician (side of keyboard, for example) or mounted in a foot pedal.

The stereo plug should be installed into the high level jack. The maximum volume desired is set by the existing volume control on the amp. The external control varies the volume from zero to the level set by the amps' internal volume control. A possible value for the external control would be 10K linear taper although other values may be used to meet individual requirements.

AMPLIFIER SPECIFICATIONS

		RD Series	RP Series
POWER OUTPUT DELIVERED TO 4 OR 8 OHM SPEAKERS		ALL — 100 models, 100 watts RMS ALL — 65 models, 65 watts RMS	
INDIVIDUAL MODELS (Followed by speaker quantity, type, and nominal diameter, except as noted for head-only models)		RD-100 (Head)	RP-100 (Head)
		112-RD65 1 Music Man 12"	112-RP65 1 Music Man 12"
		112-RD 100-EVM 1 EVM 12"	112-RP 100-EVM 1 EVM 12"
		115-RD 100-EVM 1 EVM 15"	115-RP 100-EVM 1 EVM 15"
		210-RD 100 2 Music Man 10"	210-RP 100 2 Music Man 10"
MINIMUM INPUT SENSITIVITY	Input 1 Input 2	1 mV 2 mV	1 mV 2 mV
INPUT IMPEDANCE	Input 1 Input 2	215K ohms 122K ohms	215K ohms 122K ohms
TONE CONTROL CENTER FREQUENCIES	Treble Middle Bass	3.3 kHz 460 Hz 65 Hz	3.3 kHz 460 Hz 65 Hz
BRIGHT SWITCH BOOST		+12 dB @3.2 kHz	+12 dB @3.2 kHz
DEEP SWITCH BOOST		+13 dB @54 Hz	+13 dB @54 Hz
LOW LEVEL LINE IN/OUT JACK	Nom. Level Output Z Input Z	0.1 volts RMS < 700 ohms > 180K ohms	0.1 volts RMS < 700 ohms > 180K ohms
HIGH LEVEL LINE IN/OUT JACK	Nom. Level Output Z Input Z	3 volts RMS < 700 ohms > 180K ohms	3 volts RMS < 700 ohms > 180K ohms
PHASER RATE		Not Applicable	0.05 Hz - 8 Hz
REVERB		Footswitchable	Footswitchable
POWER REQUIREMENTS ±		120 V AC, 60 Hz	120 V AC, 60 Hz
3 AG FUSE RATING		3 amp	3 amp
NOTES:		2 Gain & 2 Volume controls, footswitch selectable	Footswitchable 4 stage phaser

TUBE REPLACEMENT — Due to the many circuit refinements found in your MUSIC MAN amplifier, the vacuum tubes should run cooler and longer than in most other high power amplifiers. In the event that a tube does fail or become noisy, it should only be replaced with a tube of the same type number. The tube type numbers are listed in the tube location diagram located inside the wooden cabinet. Matched tube pairs are not necessary, but it is good practice to replace the full set in the event of any tube failure as this will help assure a longer time before subsequent replacement. Depending on use and handling, some tubes can last as long as several years.

MUSIC MAN, INC.

112RD-65
A 65 Watt RMS amplifier with a 12" custom-built Music Man guitar speaker. Dimensions: 17"H x 22.5"W x 10.5"D (43.2cm x 57.2cm x 26.7cm). Weight: 47 lbs. (21.4 kg)

RD-100
A 100 Watt RMS guitar amp head that may be used with most Music Man speaker systems. Dimensions: 8.5"H x 22.5"W x 8.5"D (21.6cm x 57.2cm x 21.6cm). Weight: 37 lbs. (16.8 kg).

112RD-100EVM
A 100 Watt RMS amplifier and a 12" heavy-duty Electro-Voice EVM™ speaker. Dimensions: 17"H x 22.5"W x 10.5"D (43.2cm x 57.2 cm x 26.7 cm). Weight: 57 lbs. (25.9 kg).

210RD-100
A 100 Watt RMS amplifier and two 10" custom-built Music Man guitar speakers. Dimensions: 15"H x 22.5"W x 10.5"D (38.1cm x 57.2cm x 26.7cm). Weight: 55 lbs. (25 kg).

115RD-100EVM
A 100 Watt RMS amplifier and a 15" heavy-duty Electro-Voice EVM™ speaker. Dimensions: 19.75"H x 22.5"W x 10.5"D (50.2cm x 57.2cm x 26.7cm). Weight: 65 lbs. (29.5 kg).

112RP-65
A 65 Watt RMS amplifier with a 12" custom-built Music Man guitar speaker. Dimensions: 17"H x 22.5"W x 10.5"D (43.2cm x 57.2cm x 26.7cm). Weight: 47 lbs. (21.4 kg).

RP-100
A 100 Watt RMS guitar amp head that may be used with all Music Man speaker systems. Dimensions: 8.5"H x 22.5"W x 8.5"D (21.6cm x 57.2cm x 21.6cm). Weight: 37 lbs. (16.8 kg).

112RP-100EVM
A 100 Watt RMS amplifier and a 12" heavy-duty Electro-Voice EVM™ speaker. Dimensions: 17"H x 22.5"W x 10.5"D (43.2cm x 57.2 cm x 26.7cm). Weight: 57 lbs. (25.9 kg).

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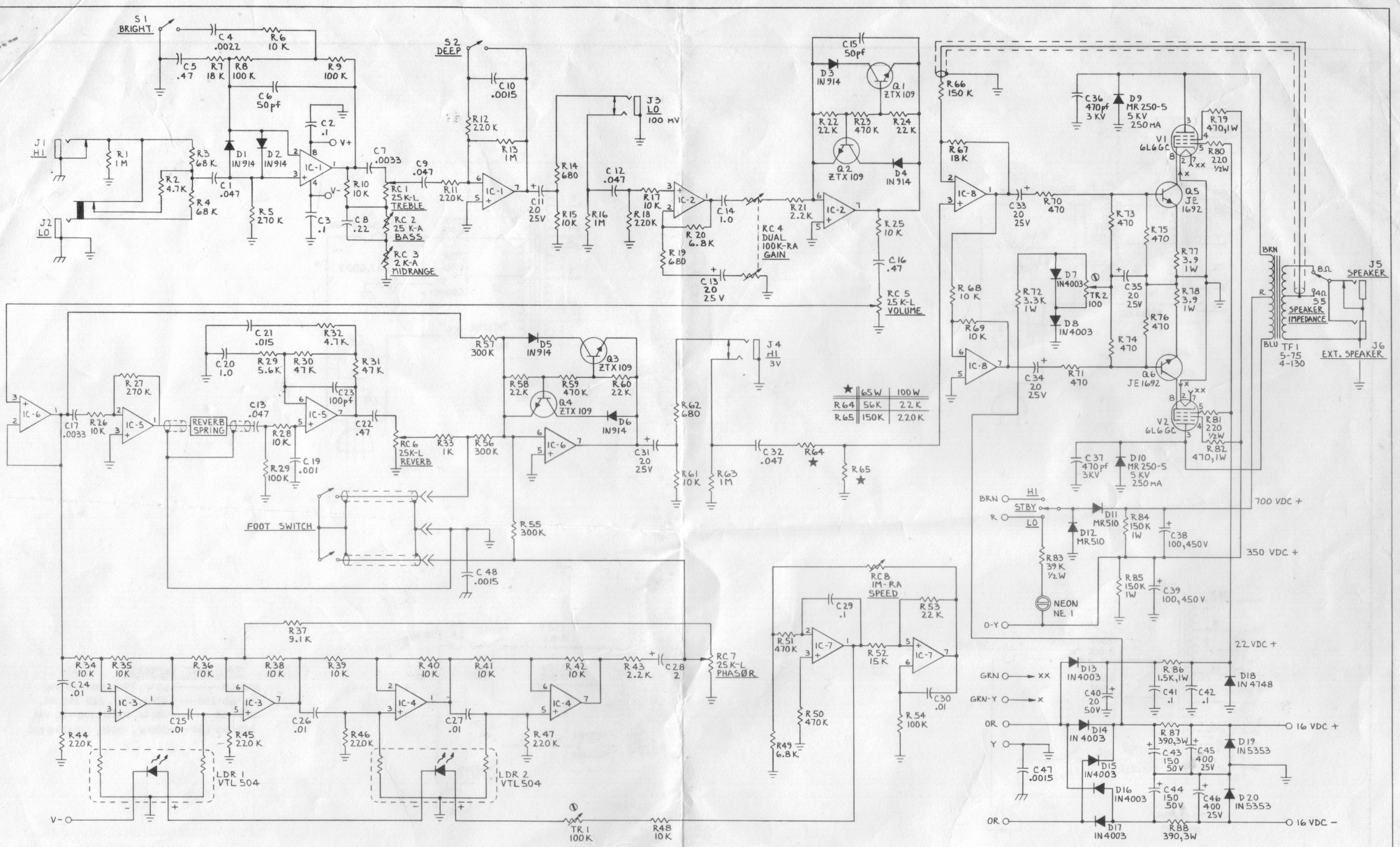
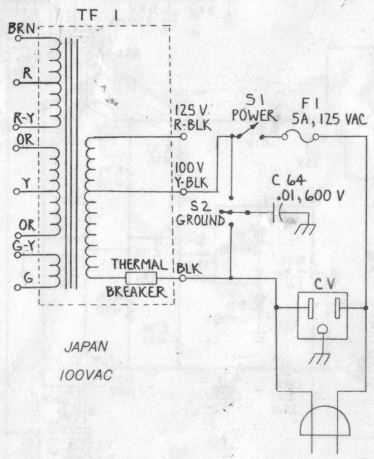
MUSIC MAN, INC.

P.O. BOX 4589
1338 STATE COLLEGE PARKWAY
ANAHEIM, CALIFORNIA 92803
TELEPHONE: 714/956-9220
TELEX: 692-397

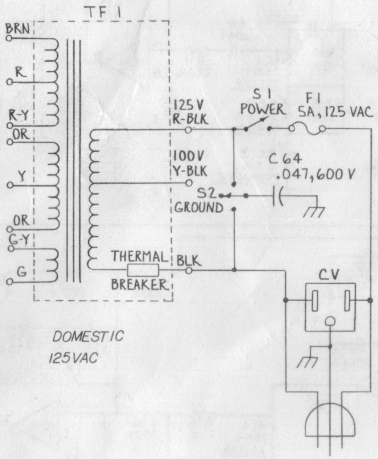


3. IC 's 1,2,5,& 6 ARE LF 353. ALL OTHERS ARE LM 1458.
2. ALL CAPACITANCE VALUES ARE IN MICROFARADS (μF) EXCEPT WHERE NOTED.
NOTE: 1. ALL RESISTANCE VALUES ARE IN OHMS (Ω) EXCEPT WHERE NOTED.

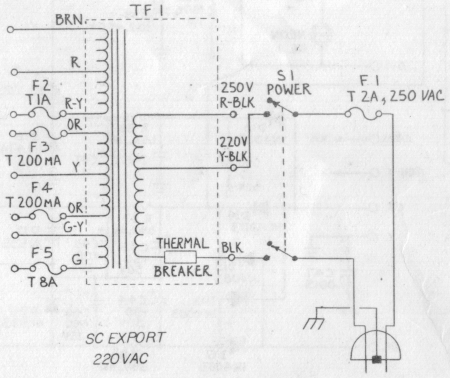
DRAWN	J. McCarty 6-27-80	MUSIC MAN INC. ANAHEIM, CA.
CHECKED	R. Wilson	SCHEMATIC DIAGRAM- RP AMPLIFIER GP-3A
DESIGNED		
APPROVED	R. Wilson	SCALE
APPROVED	WW 7-8-80	DWG. Nº 6001 REV.
		SHEET 1 OF 1



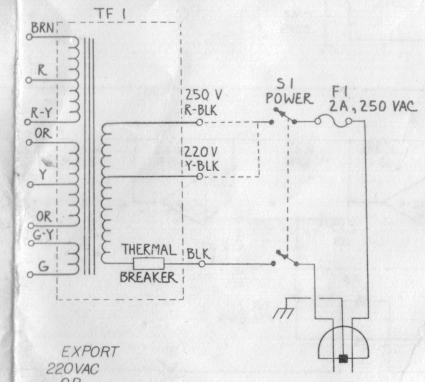
JAPAN
100VAC



DOMESTIC
125VAC



SC EXPORT
220VAC



EXPORT
220VAC
OR
250VAC

TF 1 PART NUMBERS

100-65	65 W, 75 W, 100-125 VAC
100-65-250	65W, 75W, 220-250 VAC
200-130	100 W, 150 W, 100-125 VAC
200-130-250	100 W, 150W, 220-250 VAC

POWER TRANSFORMER DIAGRAM

SCALE:	APPROVED BY:	DRAWN BY MW
DATE: 4-1-80		REVISED

MUSIC MAN INC. ANAHEIM, CA.

DRAWING NUMBER 5002

82834 PRINTED ON NO. 1000H CLEARPRINT